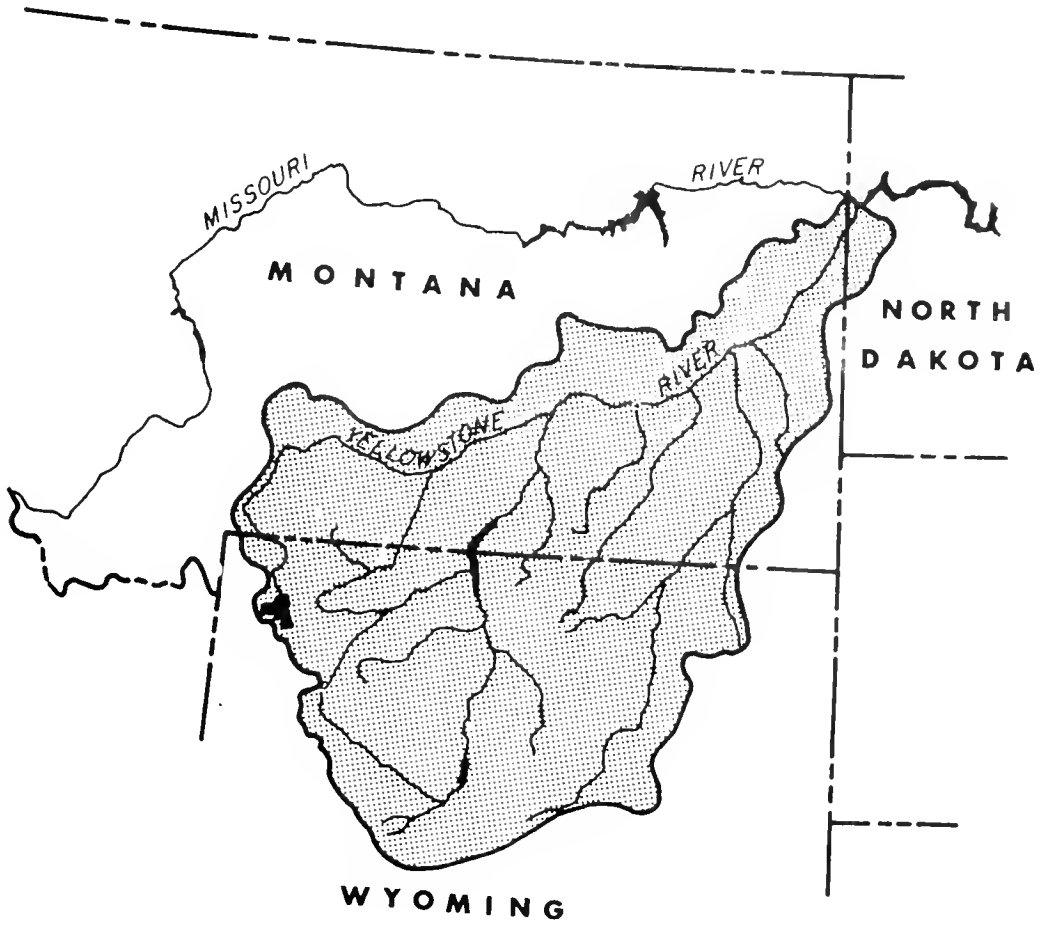
YELLOWSTONE RIVER COMPACT COMMISSION

WYOMING MONTANA NORTH DAKOTA



THIRTY-SEVENTH ANNUAL REPORT

1988

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YELLOWSTONE RIVER COMPACT COMMISSION

821 East Interstate Avenue
Bismarck, North Dakota

Honorable Mike Sullivan
Governor of the State of Wyoming
Cheyenne, Wyoming

Honorable Ted Schwinden
Governor of the State of Montana
Helena, Montana

Honorable George Sinner
Governor of the State of North Dakota
Bismarck, North Dakota

Dear Sirs:

Pursuant to Article III of the Yellowstone River Compact (YRC), the Commission submits the following thirty-seventh annual report of activities for the period ending September 30, 1988.

The Commission held its annual meeting in Billings, Montana on November 8, 1988. Mr. Jeff Fassett, Wyoming State Engineer; and Mr. Gary Fritz, Administrator, Water Resources Division, Montana Department of Natural Resources and Conservation; the designated representatives of their respective states; and Mr. L. Grady Moore, the designated federal representative and chairman were present.

Others present included:

Chuck Dalby, Montana Department of Natural Resources and Conservation, Helena, Montana;
Sue Lowry, Wyoming State Engineer's Office, Cheyenne, Wyoming;
Joe Moreland, U.S. Geological Survey, Water Resources Division, Helena, Montana;
Richard Moy, Montana Department of Natural Resources and Conservation, Helena, Montana; and
Michael Whitaker, Wyoming State Board of Control, Sheridan, Wyoming.

1. BUDGET:

Joe Moreland reported that the budget for 1988 was $33,200. A budget of $36,100 is projected for 1989 and $37,300 for 1990. The states of Montana and Wyoming each pay 1/4 of the amount and the USGS pays the remaining 1/2. The budget was approved.

Jeff Fassett suggested that other federal costs of the Compact such as travel and publication costs be added to future reports.

Gary Fritz stated that the state costs associated with Commission activities are not included in the annual report. The Commission rules state that the budget shall cover the total cost of construction, maintenance, and operation of gaging stations, the cost of engineering and clerical aid, and other necessary expenses except salaries and personnel of the commissioners. Grady Moore stated that the costs of extra meetings and other additional work of the states should be included in the budget summary. Moreland and Moore will attempt to identify federal expenditures associated with Compact activities.

2. STREAMFLOW/RESERVOIR REPORT:

Mr. Moreland reported that mean annual flow of the Clarks Fork was 65% of the long-term average, the Bighorn was 66%, the Tongue River was 55%, and the Powder River was 40%. All reporting stations had less flow than in 1987 (76, 82, 57, and 92 percent respectively). The bar graphs were changed, as discussed last year, to show 25-year averages rather than averages for the period of record.

All the reservoirs contained less water at the end of the water year than they contained at the beginning of the water year, except Pilot Butte.

3. WYOMING WATER MANAGEMENT:

Mike Whitaker reported that Wyoming was under severe regulations back to early 1880 water rights. Smaller irrigation reservoirs utilized 90-100% of their storage. The Powder River was regulated. There were no requests to regulate the Tongue River, but water use in tributaries was reduced by about 50 percent. Volunteer efforts were made to cut back and conserve the water. The stock water users were asked to share water.

4. ADJUDICATION OF INTERSTATE DITCHES:

Chuck Dalby reported that Montana was concerned that the notification process to inform the public about proposed rule changes on adjudication of interstate ditches might not meet legal requirements. Because the Yellowstone River Compact Commission is a federal entity, he felt the field solicitor should be contacted to see if YRCC is obligated to follow some federal protocol for publication in the Federal Register. The legal notice, containing initial wording of the rule plus the proposed change, must be advertised for a certain period of time. Any responses received must be reported in another advertisement addressing those comments. In Montana, the advertisement cost for a State agency is about $70 per paper for a one-time advertisement that would run for 3 consecutive weeks. A federal entity would be charged $500 for the same notice.

It was noted that a sincere effort must be made to notify concerned people and that advertisement in a newspaper would be more effective than publication in the Federal Register.

Mr. Moore stated that lawyers from both states reviewed the rules. However, he will check with Richard Aldrich, Department of Interior Field Solicitor, regarding the federal requirements for legal notice.

Mr. Dalby noted that three additional sites on the Clarks Fork would be involved in future filings and a claim on the Britton ditch still has to be resolved. The acreage that is irrigated has been verified (about 100 acres). In cooperation with the applicant, corrections will be made to the original claim form. Corrected forms can then be reviewed by the Compact Commission and entered into Montana's adjudication process.

5. ARTICLE V:

The Commissioners discussed issues concerning development of a methodology to administer terms of the YRCC. Wyoming has developed an application method and Montana developed an administrative model for the administration of water rights under Article V. The two methods have been exchanged between the states for review.

Mr. Moore suggested that a management committee and technical committee be established to develop an acceptable approach.

Gary Fritz stated that a sincere effort must be made to develop an acceptable procedure to administer water rights. He suggested that the technical committee prepare a report for the entire basin that would describe the existing water rights in Wyoming and Montana, show the priority dates, and compare water rights with water availability. He said a better understanding of the water rights situation was needed to give some guidance for the administrative process.

Rich Moy reported that he had reviewed the history of the Compact. During the 20 years that the Compact was being negotiated, Montana's position had been a doctrine of prior appropriation and Wyoming's had been management based on priority date. Both parties based their positions on the assumption that additional storage would be developed. He suggested that an evaluation of the history of the Compact be included in the technical review.

Mr. Moore commented that the Compact allows for reexamination of the allocations and allows the Commission to recommend modifications as the need arises.

Mr. Fritz remarked that when Montana experiences water-supply problems, Wyoming has already began restricting water use to pre-1950 rights. Administrative models may be of little value. He

asked if the Compact should be addressing water shortages and noted that perhaps the only issues the Compact can address are the new projects or post-1950 rights.

Mr. Fritz indicated Montana would prepare a statement on the scope of work for the technical committee that will include framework of water rights. A hypothetical situation will be included to test current proposals from Montana and Wyoming.

Mr. Fassett cautioned the Commission about trying to include too many issues in the technical review and suggested that the scope of the committee be limited to attainable goals.

Mr. Fritz stated that the jurisdiction question of the Commission was still an issue and that the work plan at least contain a strategy for addressing the problem.

Mr. Fassett commented that Montana and Wyoming have different views regarding jurisdiction. The issue may ultimately be decided in court. However, it is important to keep communication and information exchange open on other issues.

Mr. Moy was asked to prepare a draft scope of work for the Commission's review by December 1, 1988.

6. PERSONNEL:

Mr. Moore is transferring from his current position as District Chief of North Dakota in January. Although the North Dakota District Chief has traditionally served as chairman of the Commission, no rules require that the tradition continue. Phil Cohen, Chief Hydrologist, will select a replacement and will consider the Commission's views. The Commission will wait to see who fills the position of North Dakota District Chief before contacting Mr. Cohen. The Commission thanked Mr. Moore for his contributions to the YRCC.

7. POWDER RIVER TREND:

Larry Cary, USGS, reported that field data collection was initiated in July. Samples were collected from 8 sites on the mainstem of the Powder River and from 11 tributaries. A report outline and a list of illustrations has been developed for the final report.

Diversion records and county statistics will be used to identify irrigated acreage. Consumptive use will be determined by an algorithm that relates water use to streamflow conditions. The intent of the model is to simulate historical record. If the model is successful in simulating historical conditions it will be used to simulate various scenarios of development. Progress reports will be prepared quarterly during the project and meetings will be scheduled at least twice each year.

8. WYOMING WATER DEVELOPMENT:

Mr. Fassett reported that after a complete study, the project on the major mainstem Clarks Fork was shelved due mainly to budgetary problems. The site was a 400,000 acre-foot reservoir that would have cost over 300 million dollars.

The Buffalo Bill project is proceeding. Wyoming is funding about 40% of the project to enlarge the existing facility. Annual-yield estimates are around 70,000 acre-feet. The project ranks first on Wyoming's priority list.

The Lake Adelaide project on the headwaters of Shell Creek, a small tributary to the Big Horn River, was approved. The project would enlarge an existing reservoir by about 2,000 acre-feet. A wilderness-area boundary was changed to allow the project to expand.

An extensive water-supply analysis was conducted in the Sheridan area. The Water Development Commission considered many different alternatives--small dams, enlargement of existing dams, exchanges throughout the basin, etc., to solve municipal water-supply problems.

Number 2 on the state priority list is Deer Creek Dam which is on a tributary of the North Platte River. The project has prompted litigation with Nebraska.

The Sandstone project in the Little Snake drainage is number 3 on the state priority list. The project will provide water for a supplemental agricultural project, some coal gasification, and some proposed industry in the Rawlins area.

The next priority project is Viva Naughton which is an enlargement of an existing facility on the Hams Fork River, tributary to the Green River, that serves Viva Naughton power plant, one of Utah's power companies.

Middle Fork of the Powder River is number 5 on the priority list. Negotiations are continuing with individuals who hold water rights permits in the area.

The Water Development Commission has two separate programs for new development and rehabilitation. There has been a dramatic shift toward projects to upgrade or improve existing irrigation facilities, measuring devices, and land-use projects rather than new, large projects. Some small hydro projects using canal systems have also been initiated.

Wyoming's first instream-flow right was issued on the Clarks Fork in May for 200 cfs 6 miles from the national forest boundary. Instream-flow laws are based on a minimum amount of water necessary to maintain existing fisheries. Wyoming used IFIM as the technical basis for the instream-flow right.

The instream-flow right process is prompted, under Wyoming state law, by the Wyoming Game and Fish Department. The Department petitions the Water Development Commission for the instream flow right. Action of granting an instream-flow water right does not foreclose Wyoming's ability to adjust water allocations in the future.

The Wyoming Governor has endorsed Wild and Scenic designation on the Clarks Fork. Wyoming is discussing legislation language with the Forest Service. The 25-mile reach overlaps the 6 miles which now have a state instream-flow right. Little quantification information has been received regarding desired flows for the designation.

The Governor was opposed to the Wild and Scenic designation on the Little Big Horn. A final EIS should be completed in February or March. The Forest Service has received comments on the draft EIS that are equally divided in favor and against the proposal.

An application for instream-flow right has been filed for the Middle Fork Powder River upstream from the proposed dam site. A public hearing on the petition has been held. An application has also been field for the Tongue River in the canyon above Dayton.

The meeting was adjourned.

Respectfully submitted,

Gordon W. Fassett
Commissioner for Wyoming

Gary Fritz
Commissioner for Montana

L. Grady Moore
Federal Representative

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ILLUSTRATIONS

GENERAL REPORT

Cost of operation and budget

The work funded by the Commission, which to date has been primarily concerned with the collection of required hydrologic data, has been financed through cooperative arrangements whereby Montana and Wyoming each bear one-fourth of the cost and the remaining one-half is borne by the United States. The salaries and necessary expenses of the State and Federal representatives, and hydrologic data made available by other agencies, are not evaluated or considered as expenses of the Commission.

The expense of the Commission during fiscal year 1988 was $33,200, in accordance with the budget adopted for the year.

The budgets for fiscal years 1989 and 1990 were tentatively adopted subject to the availability of appropriations.

The budgets for the three fiscal years are summarized as follows:

October 1, 1987, to September 30, 1988 (fiscal year 1988):

Continuation of existing stream-gaging programs $33,200

October 1, 1988, to September 30, 1989 (fiscal year 1989):

Continuation of existing stream-gaging programs $36,100

October 1, 1989, to September 30, 1990 (fiscal year 1990):

Estimate of continuation of existing stream-gaging programs $37,300

Stream-gaging-station operation

Gaging stations at the measuring sites specified in the Compact were continued in operation and satisfactory discharge records collected at each. After approval by the Commission, the streamflow station on the Clarks Fork Yellowstone River near Silesia, Montana, was relocated December 4, 1986, about 5.8 miles upstream to the previous gaging site at Edgar, Montana. Diversions to the Whitehorse Canal between the two sites were estimated to allow adjustment of the record. Locations of gaging and reservoir stations are shown on a map of the Yellowstone River Basin at the end of the report.

During the water year ending September 30, 1988, annual streamflow was less than average in all four tributaries of the Yellowstone River as given in the following table:

Measurement point	Percent of average
Clarks Fork Yellowstone River at Edgar, Mont., minus diversions to Whitehorse Canal	65
Bighorn River above Tullock Creek, near Bighorn, minus Little Bighorn River near Hardin, Mont. Adjusted for change in contents in Bighorn Lake	66
Tongue River at Miles City, Mont.	55
Powder River near Locate, Mont.	40

Details of streamflow for water year 1988 and bar graphs showing comparisons with average flows during selected base periods and with the preceding year are given in the section "Monthly summary of discharge for Compact stream-gaging stations."

Diversions

No diversions were regulated by the Commission during the year. The Commissioners considered the need to develop procedures to administer water in accordance with the provisions of the Compact.

Storage in reservoirs

Reservoirs completed after January 1, 1950

Bighorn Lake, a U.S. Bureau of Reclamation project on the Bighorn River, and the largest storage project in the basin, contained 933,600 acre-feet at the beginning of the year and 793,300 acre-feet at the close. It fluctuated from a minimum of 792,500 acre-feet on September 17, 1988, to a maximum of 976,100 acre-feet on June 7, 1988. Boysen Reservoir, located on the Wind River and operated by the U.S. Bureau of Reclamation, began the year with 682,200 acre-feet in storage and ended with 396,500 acre-feet. Details regarding these reservoirs are given in the section "Monthly summary of contents for Compact reservoirs completed after January 1, 1950." The Commission is cognizant of other reservoirs in this general group and considers their aggregate effect to be insufficient to warrant the collection of storage data at this time.

Reservoirs existing on January 1, 1950

As a matter of record and general information, month-end storage data are given later in the report for reservoirs in existence upstream from the points of measurement on January 1, 1950. These data are pertinent to allocation under Article V, Section C, Item 3 of the Compact.

MONTHLY SUMMARY OF DISCHARGE FOR COMPACT STREAM-GAGING STATIONS

06208500 Clarks Fork Yellowstone River at Edgar, Mont.

LOCATION.--Lat 45°27'58", long 108°50'35", in SE1/4 SE1/4 SE1/4 sec. 23, T. 4 S., R. 23 E., Carbon County, Hydrologic Unit 10070006, on right bank 400 ft downstream from county bridge, 0.5 mi east of Edgar, 6 mi upstream from Rock Creek, and at mile 27.0.

DRAINAGE AREA.--2,032 mi^2.

PERIOD OF RECORD.--July 1921 to September 1969, October 1986 to current year. Records for October 1969 to September 1986 (published as Clarks Fork Yellowstone River near Silesia) at site 5.8 mi downstream not equivalent owing to diversion in Whitehorse Canal during irrigation season. Records since January 1950 available in annual reports of Yellowstone River Compact Commission.

GAGE.--Water-stage recorder. Elevation of gage is 3,460 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Aug. 31, 1953, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 14 to Feb. 26. Records good except those for winter period, which are poor. Diversions for irrigation of about 41,500 acres, of which about 840 acres lies downstream from the station. In addition, about 6,300 acres of land upstream from the station are irrigated by diversions from the adjoining Rock Creek basin. Figures of discharge given herein have the flow of Whitehorse Canal subtracted.

AVERAGE DISCHARGE.--50 years (water years 1922-69, 1987-88), 1,032 ft^3/s, 747,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 10,900 ft^3/s, June 2, 1936, gage height, 8.62 ft; minimum, 36 ft^3/s, Apr. 22, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,450 ft^3/s, May 7, gage height, 7.31 ft; minimum, 39 ft^3/s, Aug. 27.

Month	Second-foot days	Mean	Maximum	Minimum	Runoff, in acre-feet
October 1987	11,154	360	417	303	22,120
November	12,467	416	468	344	24,730
December	10,593	342	496	200	21,010
January 1988	10,210	329	550	180	20,250
February	9,669	333	545	170	19,180
March	9,442	305	380	265	18,730
April	15,182	506	930	261	30,110
May	70,005	2,258	4,640	502	138,900
June	80,530	2,684	5,020	1,550	159,700
July	8,987	290	1,260	67	17,830
August	1,535	49.5	70	41	3,040
September 1988	4,675	156	285	48	9,270
1988 water year	244,449	668	5,020	41	484,900

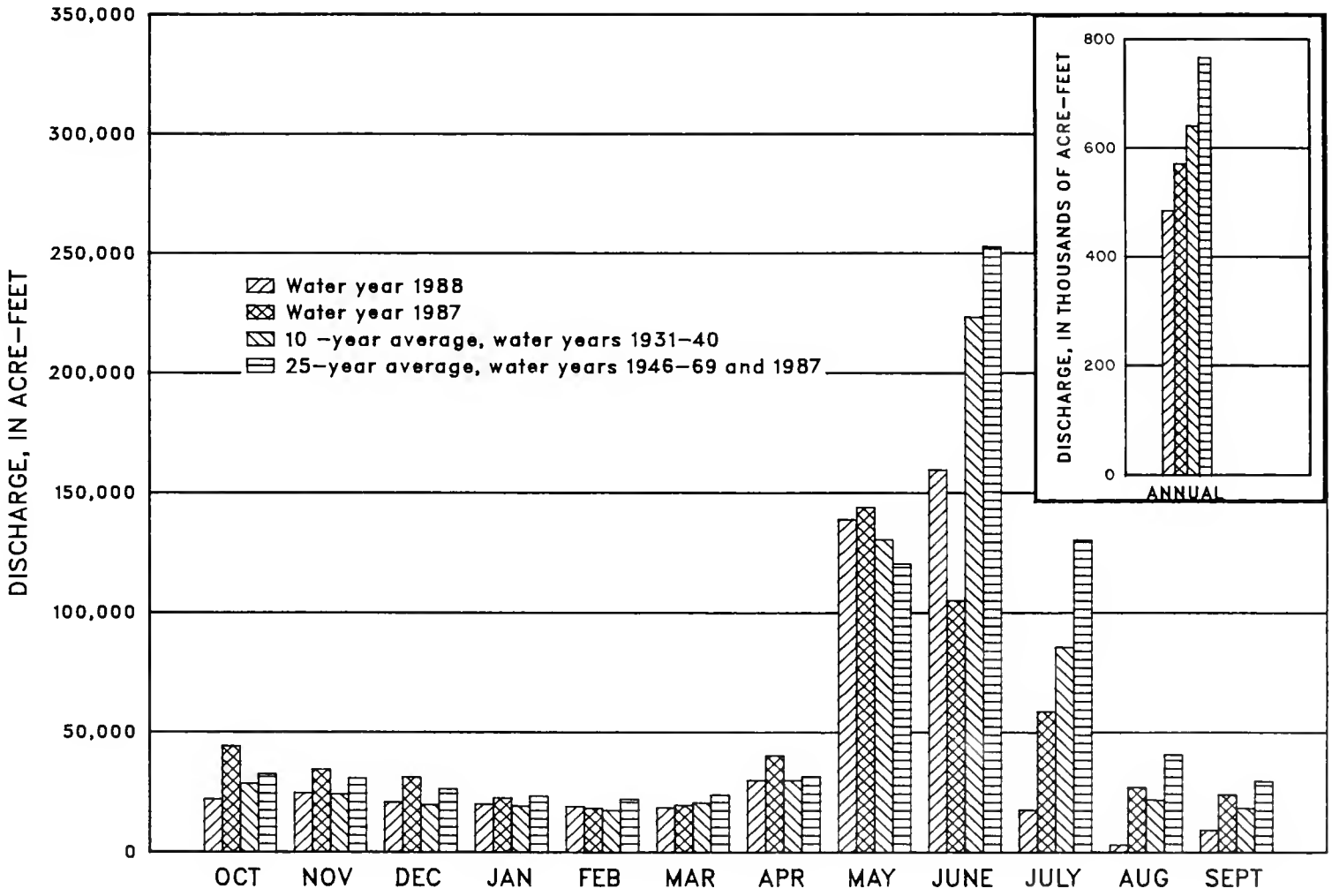


Figure 1.--Comparison of discharge for water year 1988 of Clarks Fork Yellowstone River at Edgar with discharge for water year 1987 and of Clarks Fork Yellowstone River near Silesia average discharge for water years 1931-40 and water years 1946-69 and 1987.

06294000 Little Bighorn River near Hardin, Mont.

LOCATION.--Lat 45°44'09", long 107°33'24", in SE1/4 NE1/4 NE1/4 sec. 19, T. 1 S., R. 34 E., Big Horn County, Hydrologic Unit 10080016, on left bank 50 ft downstream from bridge on Sarpy Road, 0.2 mi upstream from terminal wasteway of Agency Canal, 0.6 mi upstream from mouth, and 2.3 mi east of Hardin.

DRAINAGE AREA.--1,294 mi^2.

PERIOD OF RECORD.--June 1953 to current year. Records since June 1953 available in annual reports of Yellowstone River Compact Commission.

REVISED RECORDS.--WDR MT-86-1: 1978.

GAGE.--Water-stage recorder. Datum of gage is 2,882.29 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 7, 1953, nonrecording gage at site 0.4 mi downstream. Oct. 7, 1953, to May 6, 1963, water-stage recorder at site 0.3 mi downstream. May 6, 1963, to Nov. 6, 1963, nonrecording gage at site 0.4 mi downstream. All at different datums. Nov. 7, 1963, to Aug. 15, 1976, water-stage recorder at site 35 ft downstream at present datum. Aug. 15, 1976, to Sept. 30, 1979, water-stage recorders located on each bank downstream of Sarpy Road bridge and were used depending on control conditions.

REMARKS.--Estimated daily discharges: Dec. 14 to Mar. 13, May 14-18. Records good except those for estimated daily discharges, which are poor. Flow partly regulated by Willow Creek Reservoir (capacity 23,000 acre-ft). Diversions for irrigation of 20,980 acres upstream from station. Figures of discharge given herein include flow of terminal wasteway of Agency Canal.

AVERAGE DISCHARGE.--35 years, 303 ft^3/s, 219,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,600 ft^3/s, May 19, 1978, gage height, 11.20 ft, used gage height as obtained at bridge on Sarpy Road; maximum gage height, 11.78 ft, Mar. 20, 1960, site and datum then in use (backwater from ice); minimum discharge observed, 0.20 ft^3/s, Aug. 7, 1961, result of discharge measurement.

EXTREMES FOR CURRENT YEAR--Peak discharges greater than base discharge of 1,000 ft^3/s and maximums(*):

Date	Time	Discharge, in ft^3/s	Gage height, in feet
Feb. 24	1630	ice jam	*5.60
May 19	2200	*1,540	4.52
May 30	1300	1,270	4.26

Minimum daily discharge, 22 ft^3/s, Aug. 27.

Month	Second-foot days	Mean	Maximum	Minimum	Runoff, in acre-feet
October 1987	3,853	124	146	96	7,640
November	3,790	126	153	93	7,520
December	2,977	96.0	144	41	5,900
January 1988	2,219	71.6	120	38	4,400
February	3,210	111	340	40	6,370
March	7,243	234	358	162	14,370
April	5,243	175	240	148	10,400
May	23,343	753	1,400	235	46,300
June	10,956	365	1,070	77	21,730
July	2,500	80.6	135	31	4,960
August	1,443	46.5	80	22	2,860
September 1988	2,250	75.0	122	32	4,460
1988 water year	69,027	189	1,400	22	136,900

06294500 Bighorn River above Tullock Creek, near Bighorn, Mont.

LOCATION.--Lat 46°07'29", long 107°28'06", in SE1/4 SE1/4 NE1/4 sec. 3, T. 4 N., R. 34 E., Treasure County, Hydrologic Unit 10080015, on right bank, 1.9 mi upstream from Tullock Creek, 3.0 mi upstream from mouth, 3.6 mi southwest of Bighorn, and 4.5 mi southeast of Custer.

DRAINAGE AREA.--22,414 mi^2. Area at site used Oct. 7, 1955, to Sept. 30, 1981, 22,885 mi^2.

PERIOD OF RECORD.--Oct. 1, 1981, to current year. Records since January 1950 available in annual reports of the Yellowstone River Compact Commission. Previously, published as "06294700 Bighorn River at Bighorn, MT," 1956-81, and as "near Custer," 1945-55. Flows are equivalent at all sites.

GAGE.--Water-stage recorder. Elevation of gage is 2,700 ft above National Geodetic Vertical Datum of 1929, from topographic map. May 11, 1945, to Dec. 6, 1945, nonrecording gage, and Dec. 7, 1945, to Oct. 6, 1955, water-stage recorder at different datum. Oct. 7, 1955, to Sept. 30, 1981, at site 2.3 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 16, Dec. 30 to Jan. 14, Jan. 19, 20, and Feb. 1-16. Records good except those for estimated daily discharges, which are poor. Flow regulated by Bighorn Lake beginning November 1965 (usable capacity, 1,356,000 acre-ft). Major regulation prior to November 1965 by 14 reservoirs in Wyoming and 1 in Montana with combined usable capacity of about 1,400,000 acre-ft; see section "Monthly summary of contents for Compact reservoirs existing on January 1, 1950." Diversions for irrigation of about 445,200 acres upstream from station.

AVERAGE DISCHARGE.--43 years (water years 1946-81, 1982-88), 3,886 ft^3/s, 2,815,000 acre-ft/yr, unadjusted.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 59,200 ft^3/s, May 20, 1978, gage height, 14.15 ft; maximum gage height recorded, 14.21 ft, Apr. 2, 1965 (ice jam); minimum discharge, about 275 ft^3/s, Nov. 15, 1959, result of freezeup; minimum daily, 400 ft^3/s, Apr. 4, 1967.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft^3/s, July 4, 1983, gage height, 5.66 ft; maximum gage height, 8.65 ft, Jan. 13, 1985 (ice jam); minimum daily discharge, 1,220 ft^3/s, Oct. 18, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,520 ft^3/s, May 8, gage height, 4.29 ft; minimum daily, 1,480 ft^3/s, Oct. 21.

Month	Second-foot days	Mean	Maximum	Minimum	Runoff, in acre-feet	Adjusted runoff, in acre-feet*
October 1987	70,450	2,273	3,060	1,480	139,700	170,900
November	93,820	3,127	3,180	3,050	186,100	151,400
December	90,420	2,917	3,210	2,700	179,300	132,300
January 1988	85,940	2,772	3,200	2,490	170,500	124,100
February	83,730	2,887	3,400	2,400	166,100	142,900
March	88,520	2,855	3,200	2,480	175,600	156,200
April	74,410	2,480	2,890	2,230	147,600	128,700
May	130,480	4,209	6,390	2,800	258,800	354,600
June	86,410	2,880	4,150	2,070	171,400	127,600
July	68,920	2,223	2,450	1,960	136,700	61,200
August	60,110	1,939	2,070	1,840	119,200	51,900
September 1988	63,550	2,118	2,340	1,920	126,100	98,000
1988 water year	996,760	2,723	6,390	1,480	1,977,000	1,699,800

*Adjusted for change in contents in Bighorn Lake minus Little Bighorn River near Hardin.

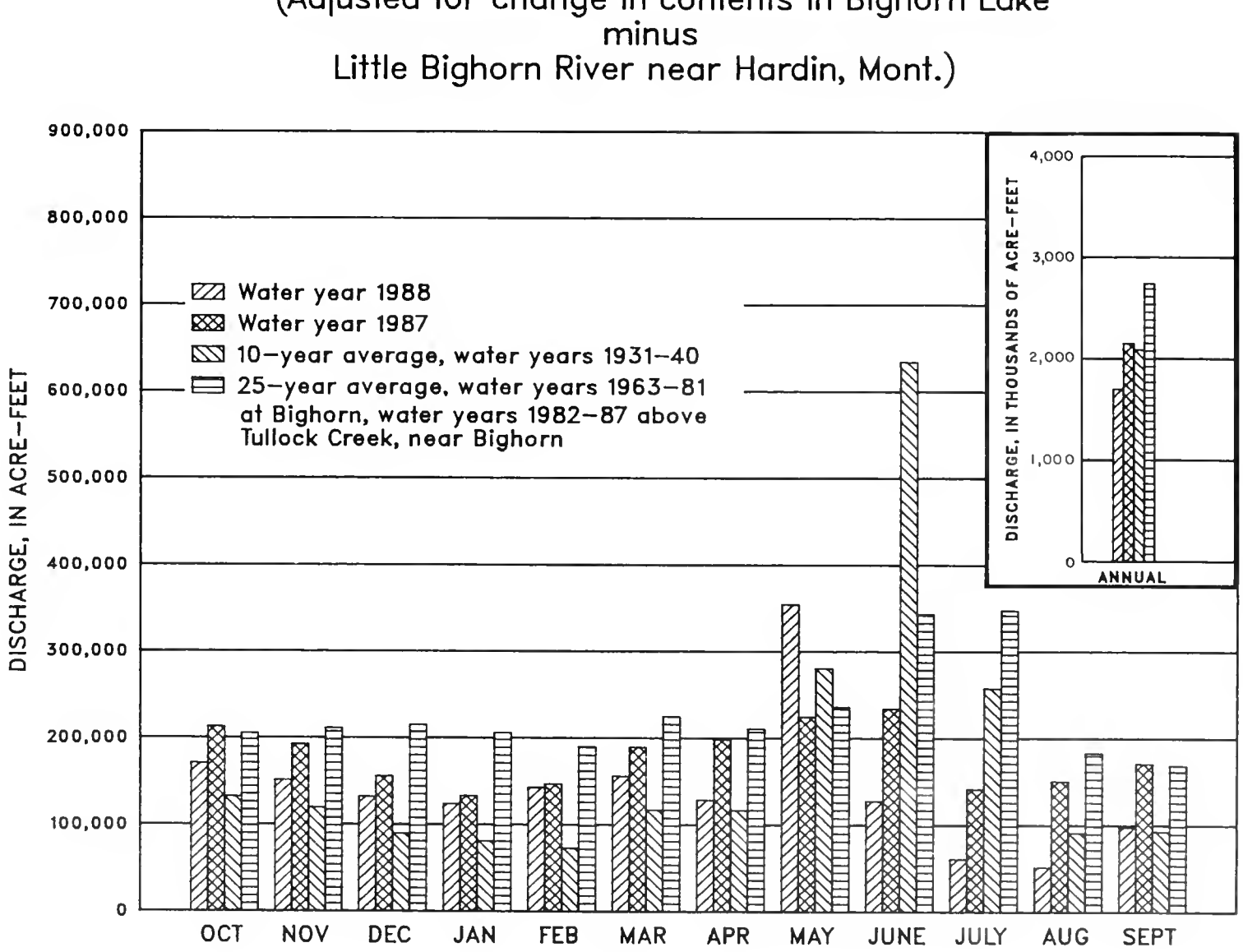


Figure 2.--Comparison of discharge for water year 1988 with discharge for water year 1987 of Bighorn River above Tullock Creek, near Bighorn and with average discharge for water years 1931-40 and 1963-81 at Bighorn and 1982-87 above Tullock Creek, near Bighorn.

06308500 Tongue River at Miles City, Mont.

LOCATION.--Lat 46°20'44", long 105°48'10", in NE1/4 NE1/4 SE1/4 sec. 23, T. 7 N., R. 47 E., Custer County, Hydrologic Unit 10090102, on right bank 4 mi south of Miles City and at mile 8.1.

DRAINAGE AREA.--5,379 mi^2.

PERIOD OF RECORD.--April 1938 to April 1942, April 1946 to current year. Published as "near Miles City" April 1938 to April 1942. Not equivalent to records published as "near Miles City" May 1929 to October 1932. Monthly discharges only for some periods, published in WSP 1309. Records since January 1950 available in annual reports of Yellowstone River Compact Commission.

GAGE.--Water-stage recorder. Datum of gage is 2,375.76 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). April 1938 to April 1942, nonrecording gage at site 8 mi upstream at different datum. April 1946 to Sept. 30, 1963, at datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Nov. 25 to Mar. 22, Apr. 12-19, June 14-21. Records good except those for May 23-27, which are fair, and Nov. 25 to Mar. 22, Apr. 12-19, June 14-21, which are poor. Flow regulation by Tongue River Reservoir (see section "Monthly summary of contents for Compact reservoirs existing on January 1, 1950") and many small reservoirs in Wyoming (combined capacity, about 15,000 acre-ft). Diversions for irrigation of about 100,800 acres upstream from station.

AVERAGE DISCHARGE.--45 years (1938-41, 1946-88), 427 ft^3/s, 309,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft^3/s, June 15, 1962, gage height, 12.33 ft, present datum, from rating curve extended above 8,220 ft^3/s on basis of float measurement; maximum gage height, 13.27 ft, Mar. 19, 1960, Feb. 15, 1971 (ice jam), present datum; no flow July 9-19, Aug. 13, 14, Sept. 28, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,650 ft^3/s, June 6, gage height, 4.31 ft; minimum daily, 19 ft^3/s, Sept. 2, 3.

Month	Second-foot days	Mean	Maximum	Minimum	Runoff, in acre-feet
October 1987	7,464	241	310	187	14,800
November	9,343	311	354	220	18,530
December	5,360	173	220	100	10,630
January 1988	3,384	109	210	50	6,710
February	5,935	205	370	70	11,770
March	6,612	213	300	120	13,110
April	4,316	144	218	57	8,560
May	18,352	592	1,310	50	36,400
June	20,587	686	1,610	70	40,830
July	2,492	80.4	173	30	4,940
August	1,254	40.5	98	21	2,490
September 1988	942	31.4	59	19	1,870
1988 water year	86,041	235	1,610	19	170,700

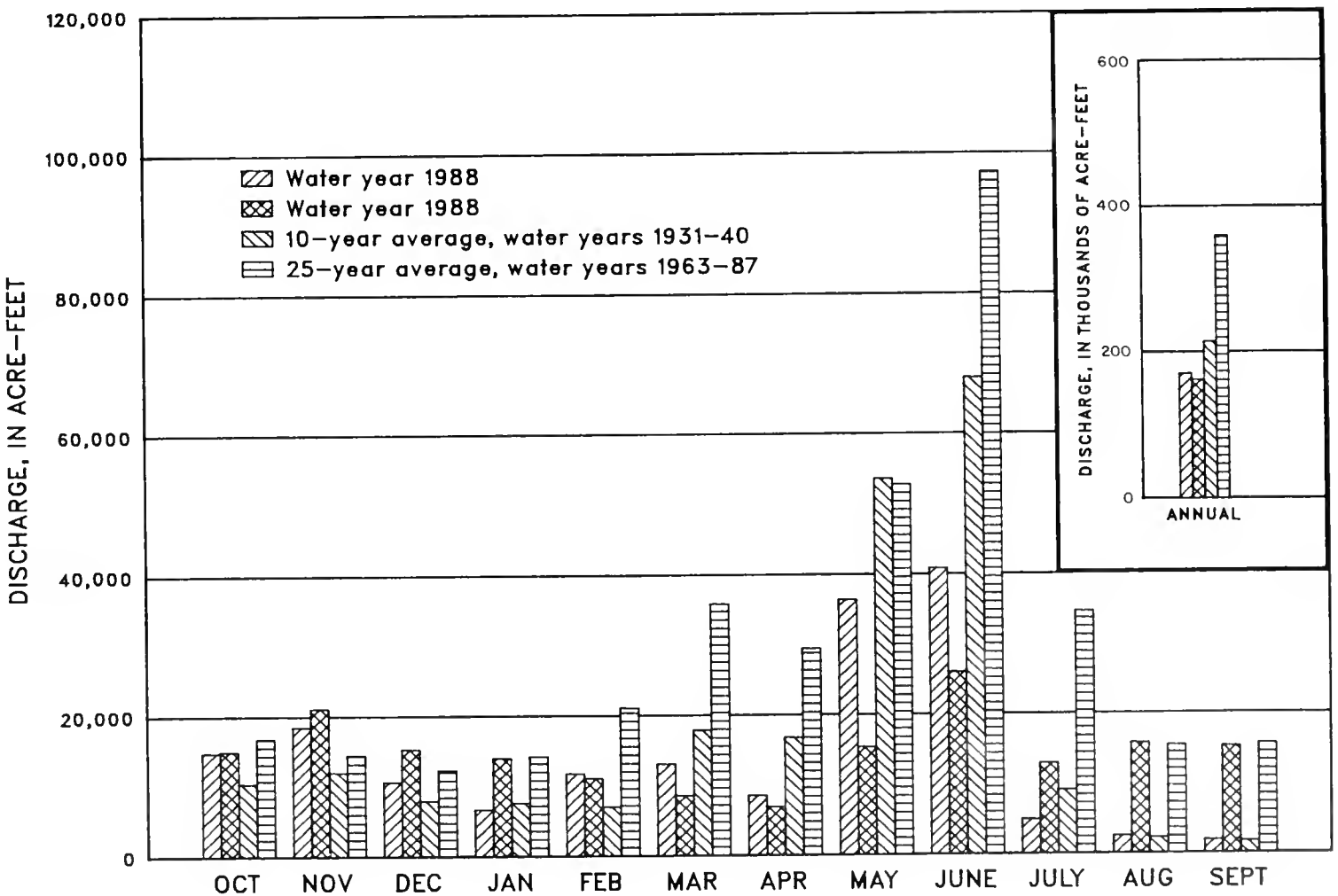


Figure 3.--Comparison of discharge for water year 1988 with discharge for water year 1987 of Tongue River at Miles City and with average discharge for water years 1931-40 and 1963-87.

06326500 Powder River near Locate, Mont.

LOCATION.--Lat 46°26'56", long 105°18'44", in NW1/4 SW1/4 sec. 14, T. 8 N., R. 51 E., Custer County, Hydrologic Unit 10090209, on left bank 1.5 mi downstream from bridge on old U.S. Highway 12 at present site of Locate, 1.5 mi upstream from Locate Creek, 5 mi west of former site of Locate, 25 mi east of Miles City, and at mile 27.9.

DRAINAGE AREA.--13,194 mi^2. Drainage area at site 1.5 mi upstream, 13,189 mi^2.

PERIOD OF RECORD.--March 1938 to current year. Records since January 1950 available in annual reports of Yellowstone River Compact Commission.

REVISED RECORDS.--WSP 926: 1939. WSP 1309: 1938-39 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,384.79 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to July 11, 1947, nonrecording gage at bridge 1.5 mi upstream, and July 11, 1947, to Sept. 30, 1965, water-stage recorder at site near upstream bridge at different datum. Oct. 1, 1965, to Oct. 4, 1966, nonrecording gage, and Oct. 5, 1966, to Mar. 21, 1978, water-stage recorder at present site and datum. Mar. 22, 1978, to Apr. 23, 1981, water-stage recorder 1.5 mi upstream at different datum, Apr. 24 to Aug. 20, 1981, water-stage recorder at present site and datum, and Aug. 21, 1981, to Sept. 30, 1981, water-stage recorder 1.5 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Nov. 28 to Mar. 18. Records fair except those for estimated daily discharges, which are poor. Some regulation by three reservoirs in Wyoming with combined usable capacity of 36,800 acre-ft. Diversions for irrigation of about 101,800 acres upstream from station.

AVERAGE DISCHARGE.--50 years, 596 ft^3/s, 431,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 31,000 ft^3/s, Feb. 19, 1943, maximum gage height, 12.27 ft, Mar. 16, 1978 (backwater from ice); no flow on many days in 1950, 1960-61, and 1988.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft^3/s and maximums(*):

Date	Time	Discharge ft^3/s	Gage height (ft)
May 21	---	*1,960	*4.45

No flow part or all of each day, Aug. 22 to Sept. 12.

Month	Second-foot days	Mean	Maximum	Minimum	Runoff, in acre-feet
October 1987	9,084	293	330	237	18,020
November	9,936	331	463	130	19,710
December	3,735	120	190	60	7,410
January 1988	2,795	90.2	190	40	5,540
February	5,280	182	500	60	10,470
March	18,023	581	1,100	270	35,750
April	11,790	393	581	272	23,390
May	19,770	638	1,730	259	39,210
June	6,695	223	527	13	13,280
July	445.4	14.4	69	1.7	883
August	40.28	1.30	49	0	80
September 1988	206.90	6.90	64	0	410
1988 water year	87,800.58	240	1,730	0	174,200

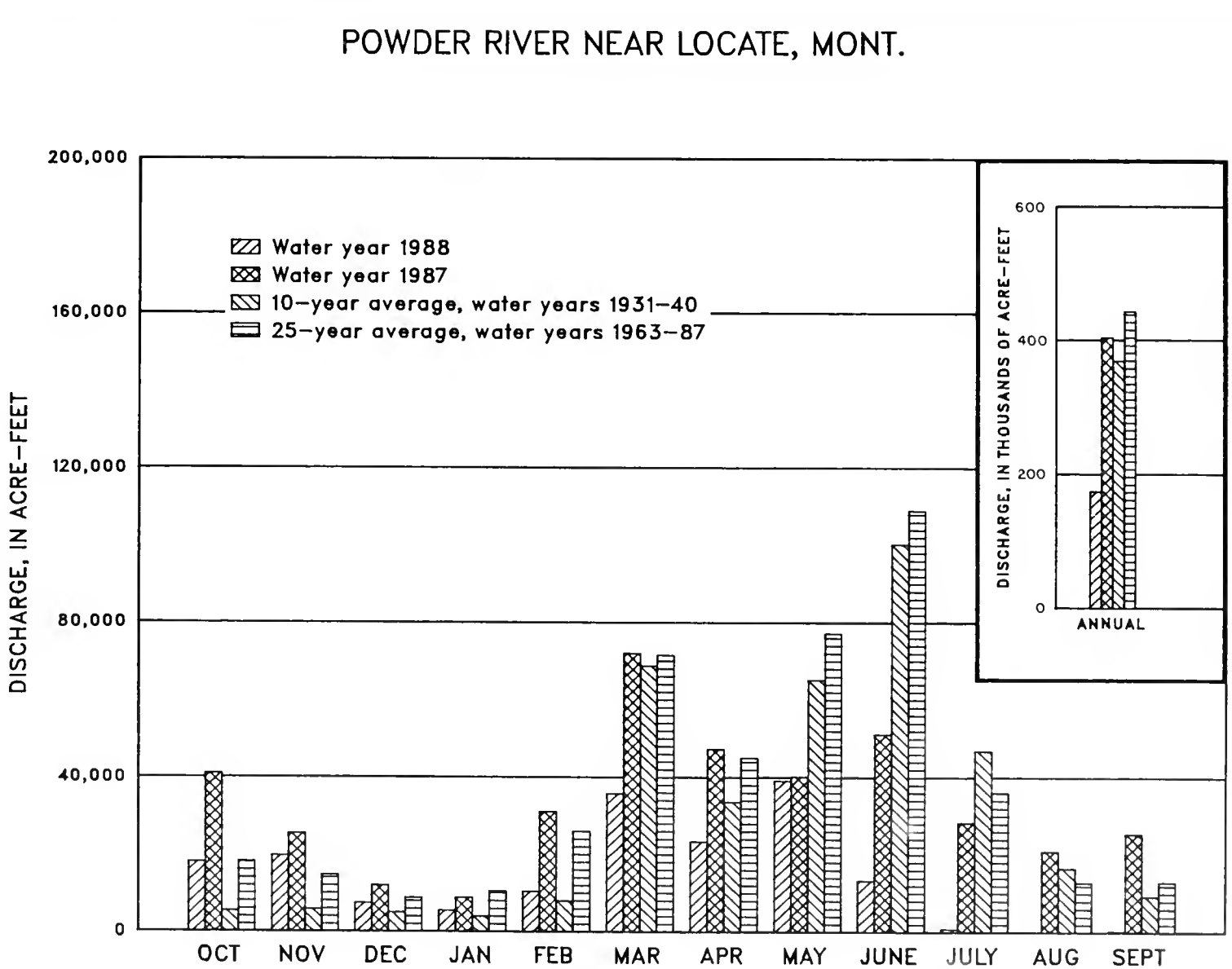


Figure 4.--Comparison of discharge for water year 1988 with discharge for water year 1987 of Powder River near Locate and with average discharge for water years 1931-40 and 1963-87.

MONTHLY SUMMARY OF CONTENTS FOR COMPACT RESERVOIRS COMPLETED AFTER JANUARY 1, 1950

06258900 Boysen Reservoir, Wyo.

LOCATION.--Lat 43°25'00", long 108°10'37", in NW1/4 NW1/4 sec. 16, T. 5 N., R. 6 E., Fremont County, Hydrologic Unit 10080005, at dam on Wind River and 13 mi north of Shoshoni, Wyoming.

DRAINAGE AREA.--7,700 mi^2.

PERIOD OF RECORD.--October 1951 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

REMARKS.--Reservoir is formed by rock-fill dam completed in October 1951. Storage began Oct. 11, 1951. Usable capacity, 742,100 acre-ft between elevation 4,657.00 ft, invert of penstock pipe, and 4,725.00 ft, top of spillway gate. Dead storage, 59,880 acre-ft below elevation 4,657.00 ft. Prior to Jan. 1, 1966, usable capacity was 757,800 acre-ft and dead storage was 62,000 acre-ft at same elevations. Crest of dam is at elevation 4,758 ft. Figures given herein represent usable contents. Water used for irrigation, flood control, and power development.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum usable daily contents, 862,500 acre-ft, July 6, 7, 1967, elevation, 4,730.83 ft; minimum usable daily since normal use of water started, 191,900 acre-ft, Mar. 18, 19, 1956, elevation, 4,684.18 ft, capacity table then in use.

EXTREMES FOR CURRENT YEAR.--Maximum usable contents, 681,400 acre-ft, Oct. 1, elevation, 4,721.81 ft; minimum usable, 396,500 acre-ft, Sept. 30, elevation, 4,703.75 ft.

Month	Water-surface elevation, in feet	Usable contents, in acre-feet	Change in contents, in acre-feet
September 30, 1987.	4,721.85	682,200	---
October 31.	4,719.86	646,000	-36,200
November 30	4,717.84	610,400	-35,600
December 31	4,715.49	570,800	-39,600
January 31, 1988.	4,713.28	535,100	-35,700
February 29	4,711.53	508,000	-27,100
March 31.	4,710.69	495,200	-12,800
April 30.	4,710.10	486,400	-8,800
May 31.	4,711.55	508,300	+21,900
June 30	4,711.04	500,500	-7,800
July 31	4,708.40	461,300	-39,200
August 31	4,705.53	420,700	-40,600
September 30, 1988.	4,703.75	396,500	-24,200
1988 water year			-285,700

06260300 Anchor Reservoir, Wyo.

LOCATION.--Lat 43°39'50", long 108°49'27", in sec. 26, T. 43 N., R. 100 W., Hot Springs County, Hydrologic Unit 10080007, at dam on South Fork Owl Creek, 2 mi downstream from Middle Fork, 3 mi southeast of Anchor, and 32 mi west of Thermopolis.

DRAINAGE AREA.--131 mi^2.

PERIOD OF RECORD.--November 1960 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (U.S. Bureau of Reclamation benchmark).

REMARKS.--Reservoir is formed by concrete arch dam completed in 1960. Usable capacity, 17,170 acre-ft between elevation 6,343.75 ft, invert of river outlet, and 6,441.00 ft, spillway crest, not including 68 acre-ft below elevation 6,343.75 ft. Prior to Oct. 1, 1971, usable capacity was 17,280 acre-ft not including 149 acre-ft below the invert. Figures given herein represent usable contents. Water is used for irrigation of land in Owl Creek basin.

COOPERATION.--Records furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum usable daily contents, 9,250 acre-ft, July 4, 1967, elevation, 6,418.52 ft; no storage on many days each year.

EXTREMES FOR CURRENT YEAR.--No usable storage this year.

Month	Water-surface elevation, in feet	Usable contents, in acre-feet	Change in contents, in acre-feet
September 30, 1987.	6,340.00	0	0
October 31.	6,340.00	0	0
November 30	6,304.30	0	0
December 31	6,304.30	0	0
January 31, 1988.	6,304.30	0	0
February 29	6,304.30	0	0
March 31.	6,304.30	0	0
April 30.	6,340.00	0	0
May 31.	6,340.00	0	0
June 30	6,304.30	0	0
July 31	6,304.30	0	0
August 31	6,304.30	0	0
September 30, 1988.	6,304.30	0	0
1988 water year			0

06286400 Bighorn Lake near St. Xavier, Mont.

LOCATION.--Lat 45°18'27", long 107°57'26", in SW1/4 SE1/4 sec. 18, T. 6 S., R. 31 E., Big Horn County, Hydrologic Unit 10080010, in block 13 of Yellowtail Dam on Bighorn River, 1.3 mi upstream from Grapevine Creek, 15.5 mi southeast of St. Xavier, and at mile 86.6.

DRAINAGE AREA.--19,626 mi^2.

PERIOD OF RECORD.--November 1965 to current year (monthend contents only). Prior to October 1969, published as "Yellowtail Reservoir."

GAGE.--Water-stage recorder in powerhouse control room. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (levels by U.S. Bureau of Reclamation).

REMARKS.--Reservoir is formed by thin concrete-arch dam; construction began in 1961; completed in 1967. Storage began Nov. 3, 1965. Usable capacity, 1,356,000 acre-ft between elevation 3,296.50 ft, river outlet invert, and 3,657.00 ft, top of flood control. Elevation of spillway crest, 3,593.00 ft. Normal maximum operating level, 1,097,000 acre-ft, elevation, 3,640.00 ft. Minimum operating level, 483,400 acre-ft, elevation 3,547.00 ft. Dead storage, 16,010 acre-ft below elevation 3,296.50 ft. Figures given herein represent usable contents. Water is used for power production, flood control, irrigation, and recreation.

COOPERATION.--Elevations and capacity table furnished by U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 1,346,000 acre-ft, July 6, 1967, elevation, 3,656.43 ft; minimum since first filling, 660,700 acre-ft, Mar. 11, 1970, elevation, 3,584.45 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 976,100 acre-ft, June 7, elevation, 3,633.24 ft; minimum, 792,500 acre-ft, Sept. 17, elevation, 3,610.83 ft.

Month	Water-surface elevation, in feet	Usable contents, in acre-feet	Change in contents, in acre-feet
September 30, 1987	3,628.96	933,600	---
October 31	3,632.89	972,400	+38,800
November 30	3,630.18	945,200	-27,200
December 31	3,625.69	904,100	-41,100
January 31, 1988	3,620.58	862,100	-42,000
February 29	3,618.39	845,300	-16,800
March 31	3,617.71	840,300	-5,000
April 30	3,616.56	831,800	-8,500
May 31	3,633.03	973,900	+142,100
June 30	3,630.85	951,800	-22,100
July 31	3,622.99	881,300	-70,500
August 31	3,614.47	816,900	-64,400
September 30, 1988	3,610.96	793,300	-23,600
1988 water year			-140,300

MONTHLY SUMMARY OF CONTENTS FOR COMPACT RESERVOIRS EXISTING ON JANUARY 1, 1950

The extent, if any, of the use of reservoirs in this category which may be subject to Compact allocations was not determined. As a matter of hydrologic interest the monthend contents in acre-feet of four reservoirs are given. The first three reservoirs are in the Bighorn River basin, Wyoming, and data on contents were furnished by the U.S. Bureau of Reclamation. The Tongue River Reservoir in Montana is operated under the supervision of the Water Resources Division of the Montana Department of Natural Resources and Conservation, which furnished the operating data.

Contents, in acre-feet

Month	06224500 [a]/Bull Lake	[b]/Pilot Butte Reservoir	06281500 [c]/Buffalo Bill Reservoir	06307000 [d]/Tongue River Reservoir
September 30, 1987. . .	92,770	0	209,700	31,470
October 31.	85,450	10,430	182,300	27,400
November 30	85,300	21,790	188,700	22,460
December 31	85,140	21,600	190,100	22,600
January 31, 1988. . . .	84,990	21,360	194,300	22,600
February 29	84,430	21,280	200,000	23,200
March 31.	84,500	22,720	208,300	28,420
April 30.	85,190	24,660	204,000	37,220
May 31.	100,700	17,420	251,300	64,620
June 30	119,500	18,300	318,900	57,000
July 31	81,150	6,830	234,300	37,850
August 31	45,990	1,840	175,500	25,060
September 30, 1988. . .	24,950	9,360	134,900	21,900
Change in contents during water year. .	-67,820	+9,360	-74,800	-9,570

[a]/ Usable contents, from revised capacity table effective October 1, 1965. Dead storage is 722 acre-ft.

[b]/ Usable contents. Dead storage is 5,360 acre-ft.

[c]/ Usable contents, from revised capacity table based on survey of 1959. Contents prior to October 1960 based on survey of 1941. Dead storage is negligible.

[d]/ Usable contents. Dead storage is 1,400 acre-ft. Contents based upon sedimentation surveys of October 1948.

RULES AND REGULATIONS FOR ADMINISTRATION OF THE YELLOWSTONE RIVER COMPACT

A compact, known as the Yellowstone River Compact, between the States of Wyoming, Montana, and North Dakota, having become effective on October 30, 1951, upon approval of the Congress of the United States, which apportions the waters of certain interstate tributaries of the Yellowstone River which are available after the appropriative rights existing in the States of Wyoming and Montana on January 1, 1950 are supplied, and after appropriative rights to the use of necessary supplemental water are also supplied as specified in the Compact, is administered under the following rules and regulations subject to the provisions for amendment revision or abrogation as provided herein.

Article I. Collection of Water Records

A. It shall be the joint and equal responsibility of the members of the States of Wyoming and Montana to collect, cause to be collected, or otherwise furnish records of tributary streamflow at the points of measurement specified in Article V (B) of the Compact, or as near thereto as is physically or economically feasible or justified.

1. Clarks Fork

   The gaging station known as Clarks Fork near Silesia, Montana and located in NW1/4 SE1/4 sec. 1, T. 4 S., R. 23 E., shall be the point of measurement for the Clarks Fork.

2. Bighorn River (exclusive of Little Bighorn River)

   The gaging station known as the Bighorn River above Tullock Creek, near Bighorn, Montana, and located in SE1/4 SE1/4 NE1/4 sec. 3, T. 4 N., R. 34 E., shall temporarily be the designated point of measurement on that stream. The flow of the Little Bighorn River as measured at the gaging station near Hardin, Montana, and located in SE1/4 NE1/4 NE1/4 sec. 19, T. 1 S., R. 34 E., shall be considered the point of measurement for that stream, except that if or when satisfactory records are not available, the records for the nearest upstream station with practical corrections for intervening inflow or diversion shall be used.

3. Tongue River

   The gaging station known as the Tongue River at Miles City, Montana, and located in NE1/4 NE1/4 SE1/4 sec. 23, T. 7 N., R. 47 E., shall temporarily be the point of measurement for that stream.

4. Powder River

The gaging station known as the Powder River near Locate, Montana, and located in NW1/4 SW1/4 sec. 14, T. 8 N., R. 51 E., shall temporarily be the designated point of measurement for that stream.

B. Records of total annual diversion in acre-feet above the points of measurement designated in the Compact for irrigation, municipal, and industrial uses developed after January 1, 1950, shall be furnished by the members of the Commission for their respective States, at such time as the Commission deems necessary for interstate administration as provided by the terms of the Compact. Providing that if it be acceptable to the Commission, reasonable estimates thereof may be substituted.

C. Annual records of the net change in storage in all reservoirs, not excluded under Article V (E) of the Compact, above the point of measurement specified in the Compact and completed after January 1, 1950, and the annual net change in reservoirs existing prior to January 1, 1950, which is used for irrigation, municipal, and industrial purposes developed after January 1, 1950, shall be the primary responsibility of the member of the Commission in whose State such works are located; providing such data are not furnished by Federal agencies under the provisions of Article III (D) of the Compact, or collected by the Commission.

Article II. Office and Officers

A. The office of the Commission shall be located at the office of the Chairman of the Commission.

B. The Chairman of the Commission shall be the Federal representative as provided in the Compact.

C. The Secretary of the Commission shall be as provided for in Article III of these rules.

D. The credentials of each member of the Commission shall be placed on file in the office of the Commission.

Article III. Secretary

A. The Commission, subject to the approval of the Director of the United States Geological Survey, shall enter into cooperative agreements with the U.S. Geological Survey for such engineering and clerical services as may reasonably be necessary for the administration of the Compact. Said agreements shall provide that the Geological Survey shall:

1. Maintain and operate gaging stations at or near the points of measurement specified in Article V (A) of the Compact.

2. Assemble factual information on stream flow, diversion, and reservoir storage for the preparation of an annual report to the Governors of the signatory States.

3. Make such investigations and reports as may be requested by the Commission in aid of its administration of the Compact.

B. The Geological Survey shall act as Secretary to the Commission.

Article IV. Budget

A. At the annual meeting of each even-numbered year or prior thereto, the Commission shall adopt a budget for operation during the ensuing biennium beginning July first. Such budget shall set forth the total cost of construction, maintenance and operation of gaging stations, the cost of engineering and clerical aid, and other necessary expenses excepting the salaries and personal expenses of the Commissioners. On odd-numbered years revisions of the budget shall be considered.

B. It shall be the obligation of the Commissioners of the States of Montana and Wyoming to endeavor to secure from the Legislature of their respective States sufficient funds with which to meet the obligations of this Compact, except insofar as provided by the Federal government.

Article V. Meetings

An annual meeting of the Commission shall be held each November at some mutually agreeable point in the Yellowstone River Basin for consideration of the annual report for the water year ending the preceding September 30th, and for the transaction of such other business consistent with its authority; provided that by unanimous consent of the Commission the date and place of the annual meeting may be changed. Other meetings as may be deemed necessary shall be held at a time and place set by mutual agreement, for the transaction of any business consistent with its authority.

No action of the Commission shall be effective until approval by the Commissioners for the States of Wyoming and Montana.

Article VI. Amendments, Revisions and Abrogations.

The Rules and Regulations of the Commission may be amended or revised by a unanimous vote at any meeting of the Commission.

Gary Fritz
Commissioner for Montana

George L. Christopulos
Commissioner for Wyoming

ATTESTED:

L. Grady Moore
Federal Representative

Adopted November 17, 1953
Amended December 16, 1986

RULES FOR ADJUDICATING WATER RIGHTS ON INTERSTATE DITCHES

Article I. Purpose

The purpose of this rule is to determine and adjudicate, in accordance with the laws of Montana and Wyoming, those pre-Compact (January 1, 1950) water rights for diverting from the Powder, Tongue, Bighorn and Clarks Fork Rivers and their tributaries where the point of diversion is in one State and the place of use is in the other State.

Article II. Authority

In accordance with the Yellowstone River Compact, the State of Montana and the State of Wyoming, being moved by consideration of interstate comity, desire to remove all causes of present and future controversy between the States and between persons in one State and persons in another State with respect to these interstate ditches. Article III (E) of the Compact provides the Yellowstone River Compact Commission with the authority "...to formulate rules and regulations and to perform any act which they may find necessary to carry out the provisions of this Compact...."

Article III. Definitions

The terms defined in the Yellowstone River Compact apply as well as the following definitions:

1. "Acre-feet" means the volume of water that would cover 1 acre of land to a depth of 1 foot.

2. "Cubic foot per second" means a flow of water equivalent to a volume of 1 cubic foot that passes a point in 1 second of time and is equal to 40 miners inches in Montana.

3. "Interstate Ditches" shall include ditches and canals which convey waters of the Bighorn, Tongue, Powder, and Clarks Fork Rivers and their tributaries across the Wyoming-Montana State line where the water is diverted in one State and the place of use is in the other State.

4. "Department of Natural Resources and Conservation," hereafter called the "Department," means the administrative agency and Department of the Executive Branch of the Government of Montana created under Title II, Chapter 15, MCA which has the responsibility for water administration in that State.

5. "Water Court" means a Montana District Court presided over by a water judge, as provided for in Title III, Chapter 7, MCA.

6. "State Engineer" shall be the current holder of the position created by the Wyoming Constitution as Chief Water Administration Official for the State of Wyoming.

7. "Board of Control," hereinafter called the "Board," is defined as the constitutionally created water management agency in Wyoming composed of the four Water Division Superintendents and the State Engineer.

8. "Superintendent" is the member of the Board who is the water administration official for the Water Division where the interstate ditch is located. (The two Water Divisions in the Yellowstone River drainage are Water Division Numbers Two and Three.)

9. "Date of Priority" shall mean the earliest date of actual beneficial use of water, unless evidence and circumstances pertaining to a particular claim establish an earlier date.

10. "Point of Diversion" is defined to be the legal land description by legal subdivision, section, township, and range of the location of the diversion structure for an interstate ditch from a natural stream channel.

11. "Place of Use" is defined to be the legal land description (legal subdivision, section, township, and range) of the lands irrigated by an interstate ditch.

12. "Person" is defined as an individual, a partnership, a corporation, a municipality or any other legal entity, public or private.

13. "Claimant" is defined as any person claiming the use of water from an interstate ditch as herein defined.

Article IV. Procedures

The procedures for determining and adjudicating water rights associated with interstate ditches shall be categorized as follows: (A) Where the point of diversion is in Wyoming and place of use in Montana, and (B) Where the point of diversion is in Montana and place of use in Wyoming.

A. Wyoming Procedure

1. The Yellowstone River Compact Commission will provide a claim form to be completed by the claimant that will describe the location and point of diversion and land being irrigated, the priority date claimed, method of irrigation and such other information required to describe the claim.

2. The Yellowstone River Compact Commission will send the claim form to water users on the interstate ditches.

3. Water users will complete the claim form and file it with the Yellowstone Compact Commission, which, when found to be correct and complete, will be forwarded to the Board for verification.

4. Upon receipt of the form, the Board shall forward it to the appropriate Superintendent, who in cooperation with the Department, will validate the information including the use that has been made of the water, the number of acres and location of lands being irrigated, the priority date, and all other relevant information. The Superintendent and the Department will utilize aerial photography and other information to have prepared a reproducible map showing the location of the ditch system, lands irrigated, point of diversion, etc., of the claim.

5. After the validation procedure, the Superintendent will hold a hearing, after appropriate notice and advertisement, at which time the claimant shall describe, in detail, the use that has been made of the water and the lands that are being irrigated, establish a priority date, etc. Costs incurred in advertising shall be paid by the claimant. If a single hearing is held to consider several claims, the costs of advertising shall be shared equally among the claimants. Anyone who opposes the claim shall appear and state the reasons, if any, for opposition to the claim. If there is no opposition to the claim, cost incurred in holding the hearing shall be paid by the claimant. If protestants do appear and oppose the claim, hearing costs will be paid 50 percent by the claimant and 50 percent by the protestant, or if there is more than one protestant, the remaining 50 percent shall be shared equally among the protestants.

6. At the conclusion of the hearing, the Superintendent shall forward the record to the Yellowstone River Compact Commission with findings and recommendations. The Yellowstone River Compact Commission will make the

determination of the amount of the right, the location, and the priority date, and then send the record to the Board.

7. The Board shall review the record and integrate it into its water rights system. Upon entry of the record by the Board, the information shall be forwarded to the Department and the Chairman of the Yellowstone River Compact Commission.

8. Upon the entry of the right into the Board's records, it would have the following attributes:

   a. The right will be a Wyoming water right with a priority date as established by this procedure.

   b. The amount of the right will be determined as provided by Wyoming law, i.e., 1 cubic foot per second per 70 acres, with an additional 1 cubic foot per second if the right has priority earlier than March 1, 1945, under the Wyoming Surplus Water Law, 41-4-318 and 41-4-319, W.S. 1977.

B. Montana Procedure

1. The Yellowstone River Compact Commission will provide a claim form to be completed by the claimant that will describe the location and point of diversion and land being irrigated, the priority date claimed, method of irrigation and such other information required to describe the claim.

2. The Commission will send the claim form to water users on the interstate ditches.

3. Water users will complete the claim form and file it with the Yellowstone River Compact Commission, which, when found to be correct and complete, will be forwarded to the Department for verification.

4. Upon receipt of the form, the Department, in cooperation with the Wyoming State Engineer's Office, will validate the information, including the use that has been made of the water, the number of acres and location of lands being irrigated, the priority date, and all other relevant information. The appropriate Superintendent and the Department will utilize aerial photographs and other information to have prepared a reproducible map showing the location of the ditch system, land irrigated, point of diversion, etc., of the claim.

5. The Department would then forward the record to the Yellowstone River Compact Commission with its findings and recommendations. Upon approval by the Commission, the record shall be submitted to the Montana Water Court for adjudication. A duplicate record will be forwarded to the Wyoming State Engineer's Office, the Board, and the Chairman of the Yellowstone River Compact Commission upon adjudication.

6. Upon adjudication of the right by the Montana Water Court, it would have the following attributes:

   a) The right will be a Montana water right with a priority date as established by this procedure.

   b) The amount of the right will be determined as provided by Montana law.

Article V. Exclusions

A. These rules recognize the limitation in Article VI of the Yellowstone River Compact regarding Indian water rights.

B. These rules shall not be construed to determine or interpret the rights of the States of Wyoming and Montana to the waters of the Little Bighorn River.

Article VI. Claim Form Submission Period

All claims must be submitted to the Yellowstone River Compact Commission, c/o L. Grady Moore, United States Geological Survey, 821 E. Interstate, Bismarck, ND 58501 no later than December 31, 1984.

Gary Fritz
Gary Fritz
Commissioner for Montana

George L. Christopulos
George L. Christopulos
Commissioner for Wyoming

ATTESTED:

L. Grady Moore
L. Grady Moore
Federal Representative

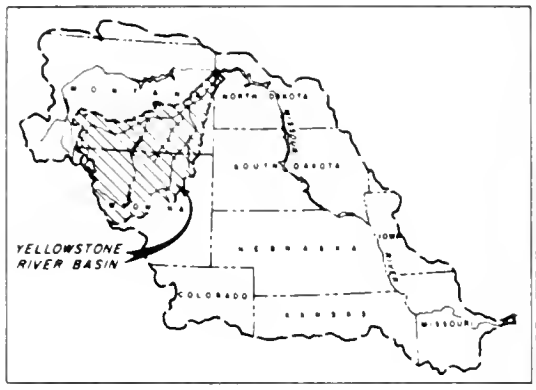
Adopted September 20, 1984

METRIC CONVERSION TABLE

The following factors may be used to convert the inch-pound units published herein to the International System (SI) of metric units. Subsequent reports will contain both the inch-pound and SI unit equivalents in the station manuscript descriptions until such time that all data will be published in SI units.

Multiply inch-pound units	By	To obtain SI units
	Length	
feet (ft)	0.3048	meters (m)
miles (mi)	1.609	kilometers (km)
	Area	
acres	4,047	square meters (m^2)
	0.4047	*hectares (ha)
	0.4047	square hectometer (hm^2)
	0.004047	square kilometers (km^2)
square miles (mi^2)	2.590	square kilometers (km^2)
	Volume	
cfs-day or second-foot day (ft^3/s-day)	2,447	cubic meters (m^3)
	0.002447	cubic hectometers (hm^3)
cubic feet	0.02832	cubic meters
acre-feet (acre-ft)	1,233	cubic meters (m^3)
	0.001233	cubic hectometers (hm^3)
	0.000001233	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	28.32	liters per second (L/s)
	28.32	cubic decimeters per second (dm^3/s)
	0.02832	cubic meters per second (m^3/s)
acre-feet per year (acre-ft/yr)	1,233	cubic meters per year (m^3/yr)
	0.001233	cubic hectometers per year (hm^3/yr)
	0.000001233	cubic kilometers per year (km^3/yr)

*The unit hectare is approved for use with the International System (SI) for a limited time. See NBS Special Bulletin 330, p. 15, 1972 edition.



LOCATION MAP

YELLOWSTONE RIVER COMPACT COMMISSION

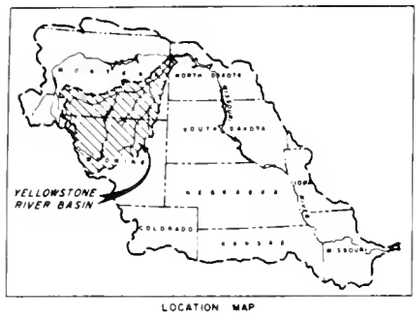
YELLOWSTONE RIVER BASIN

EXPLANATION

▲ COMPACT STREAM-GAGING STATION
◧ RESERVOIR-CONTENT STATION
06307000 STATION NUMBER

0 10 20 30 40 MILES
0 10 20 30 40 KILOMETERS

MAP SHOWING LIONS



LOCATION MAP

YELLOWSTONE RIVER COMPACT COMMISSION

YELLOWSTONE RIVER BASIN

EXPLANATION

▲ COMPACT STREAM-GAGING STATION
▮ RESERVOIR-CONTENT STATION
06307000 STATION NUMBER

0 10 20 30 40 MILES
0 10 20 30 40 KILOMETERS

MAP SHOWING LOCATIONS OF COMPACT STREAM-GAGING AND RESERVOIR-CONTENT STATIONS